John H. Kerr Dam and Reservoir
Potential Interim Operations

November 20, 2008
Williamston, NC

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Purpose

Modify the water release schedule from Kerr/Gaston/Roanoke Rapids reservoir system to reduce impacts to the downstream floodplain ecosystem (plants, animals, bank stability) as indicated by the health and reproduction of bottomland hardwood forests

- **Long duration flooding during the growing season appears to be changing the character of the forests; an indication of this is seedling mortality**
- **Supported by the NC Dept. of Environment and Natural Resources, NC Wildlife Resources Commission, US Fish and Wildlife Service and The Nature Conservancy**

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Method

- **Potential Method: When necessary due to rainfall and high lake levels, increase rate of water release in the winter and spring**
  - **Up to 35,000 cfs, to remove water from the system more quickly**
  - **Flooding only an issue during wettest years.**
- **Must minimize impacts to authorized project purposes and other resources including:**
  - **Downstream flood control on agricultural land and other resources**
  - **Reservoir water levels**
  - **Power generation at all three reservoirs**
  - **In reservoir and downstream recreation and wildlife**
  - **Spring releases for striped bass**

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- **Alternatives**

  - **Many alternatives were considered to reduce the duration of downstream bottomland flooding. Have been narrowed down to the following:**

    - **Kerr Reservoir Guide curves – Two scenarios (Existing, Alt 6)**

    - **Water releases from Roanoke Rapids – Two scenarios (Existing, Opt B)**

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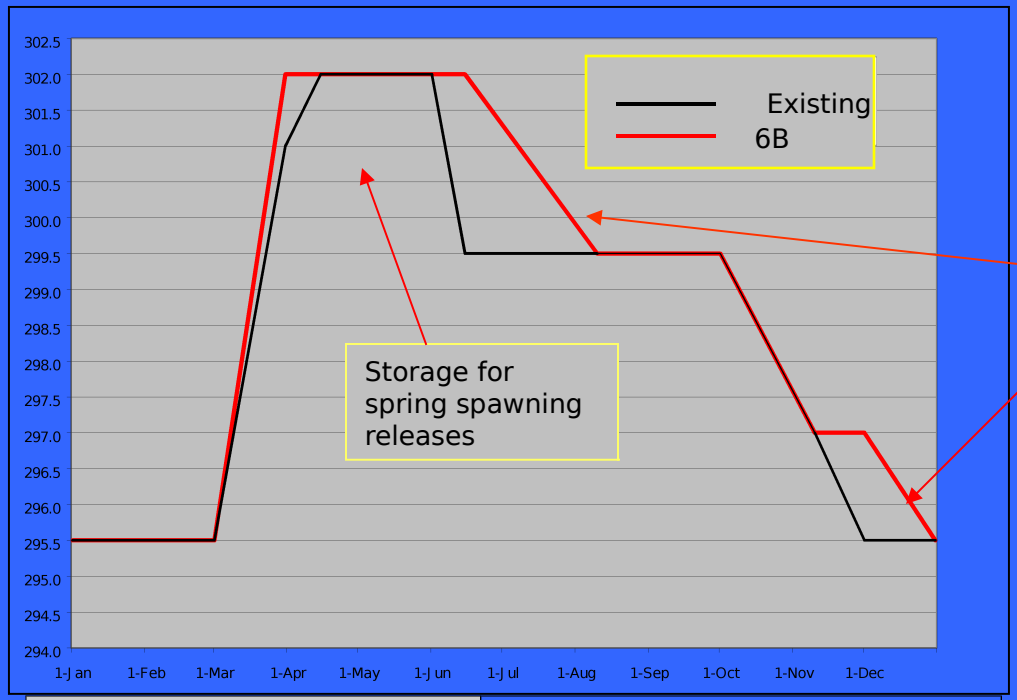
Alternative
Kerr Reservoir Guide Curve

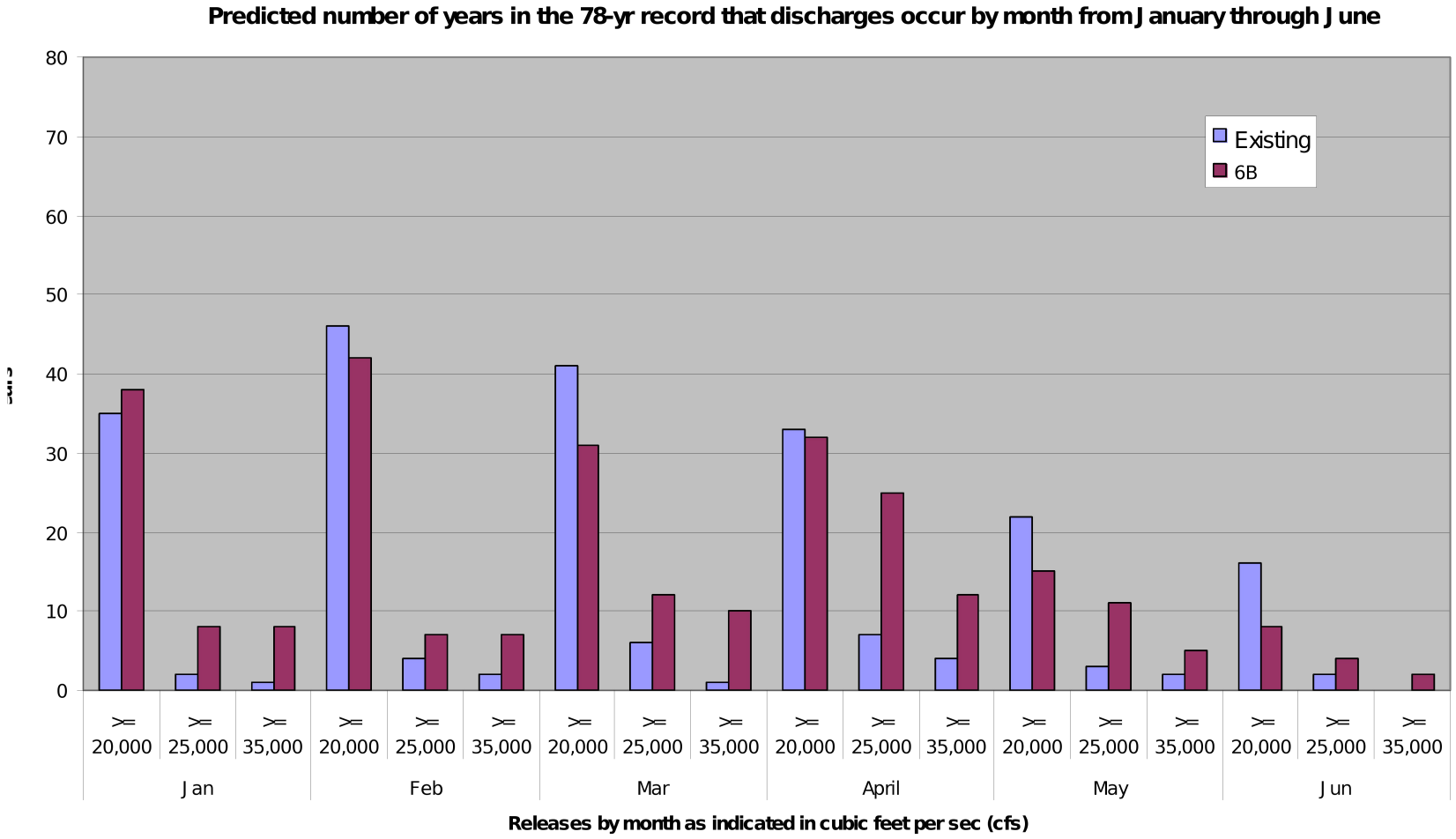


Alternative
Roanoke Rapids Releases

Existing Operations		Alternative 6B	
Kerr lake level (ft-msl)	Roanoke Rapids releases (cfs)	Kerr lake level (ft-msl)	Roanoke Rapids releases (cfs)
Below 300	Up to 8,000	Below 302	Up to 11,000*
300 – 312	Up to 20,000	302 - 303	Up to 20,000*
312 – 315	Up to 25,000	303 - 315	Up to 35,000*
315 – 320	Up to 35,000	Above 315	Existing operations
320 – 321	85% of inflow or up to 35,000, whichever is higher	* During April 1 – June 30; • From Jan 1 - March 31, releases up to 20,000 cfs whenever the elevation exceeds the guide curve up to an elevation of 303 feet. Above 303, follow the release protocol indicated above. • During the rest of the year, follow existing operations.	
Above 321	Inflow		

Predicted number of years in the 78-year period of record that discharges occur by month during January through June

Existing	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
≥ 20,000	35	46	41	33	22	16	7	7	15	15	14	17
≥ 25,000	2	4	6	7	3	2	1	1	3	1	0	0
≥ 35,000	1	2	1	4	2	0	0	1	2	1	0	0
Option 6B	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
≥ 20,000	38	42	31	32	15	8	6	9	15	16	13	19
≥ 25,000	8	7	12	25	11	4	1	1	3	1	0	0
≥ 35,000	8	7	10	12	5	2	0	1	2	1	0	0


Predicted number of years in the 78-yr record that discharges occur by month from January through June
80
70
60
50
40
30
20
10
0
Existing
6B
>= 20,000
>= 25,000
>= 35,000
Jan
Feb
Mar
April
May
Jun
Releases by month as indicated in cubic feet per sec (cfs)

TO SUMMARIZE

- The guide curve for Alternative 6B should not have significant adverse impacts on Kerr Reservoir activities
- Alternative 6B releases should improve the downstream ecosystem, but may have adverse impacts on agriculture
- For the months of January through June, downstream flooding in the agricultural area affected by a 20,000 cfs discharge will occur less frequently under alternative 6B than under the existing operations
- There could be increased impacts to some agricultural lands due to more frequent releases at or above 25,000 cfs from January through June
- Alternative 6B results in no significant difference in the frequency of any releases at or above 20,000 cfs from July through December since existing operations will occur then

Alternative 6B Recommendations

- Alternative 6B the best for minimizing impacts to most resources due to winter releases but there still are agricultural issues
  - Farmland may be flooded more often due to more frequent higher releases. Preliminary numbers based on historic satellite imagery:
    - 20,000 cfs about 540 acres – less frequently
    - 25,000 cfs about 420 acres – more frequently
    - 35,000 cfs about 1,080 acres – more frequently
    - In summary: 540 acres less frequently, but 1,500 acres more frequently
    - Some of the locations may be misregistration – farmland and satellite imagery not exactly aligned or locally heavy rainfall ponded in fields

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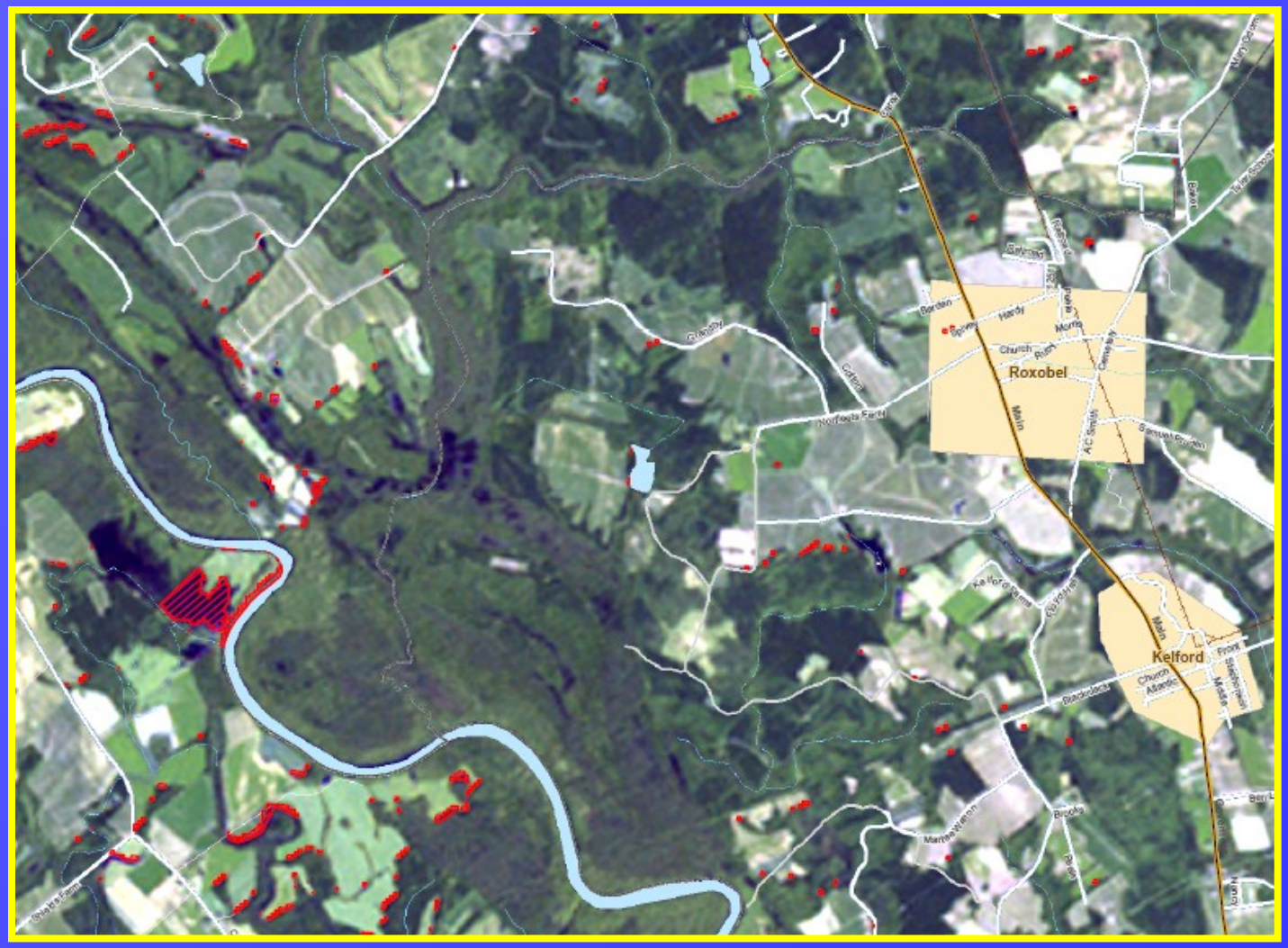
John H. Kerr Dam
Flood Management Operations
20,000 cfs



Alternative 6B Recommendations (con't)

- Could impact critical spring planting periods during wet years
- Could affect winter cover crops such as wheat
- A deviation request and EA/FONSI or EIS will be required before implementation of any alternative such as 6B
  - ❖ Alternative must be in the overall public interest
  - ❖ EA/EIS must include any necessary mitigation to offset potential agriculture impacts and impacts to other resources
- **Therefore, alternative 6B requires further investigation and will not be implemented before 2010. Further investigations include:**
  - Spring test release
  - Winter test release

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Spring Test Release Recommendations

- Spring releases proposed to assist UNC with tree seedling survival monitoring and evaluations (if water is available) – can alternative 6B reduce the duration of flooding enough to help the bottomland forest ecosystem?
  - ❖ During 2009, make controlled releases less than 15,000 cfs during the bottomland hardwoods growing season
  - ❖ Without a release protocol plan, adequate inundation scenarios may not occur to document flooding effects on seedlings
  - ❖ A deviation request and EA/FONSI may be needed before the test
  - ❖ Preliminary discussion occurred during October 27th conference call
    - Draft plan from UNC around December 1, 2008
    - Final plan scheduled for completion by end of January
    - Development of final plan will be an iterative process

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Winter Test Release Recommendations

- Winter test release to verify impacts on farmland – emphasis of the rest of this meeting
  - ❖ Requested by several farmers at the May 2008 town hall meetings
  - ❖ Landsat imagery available for releases at 20,000, 25,000, and 35,000 cfs. Imagery available on tables here and our webpage

    http://www.saw.usace.army.mil/JHKerr/opnchange/index.htm
    - ❖ Releases for at least 5 days
    - ❖ No recent rainfall
  - ❖ Normally 20,000 or higher releases occurs during existing flood management operations each winter/early spring. When this occurs, use this opportunity to verify Landsat imagery
    - ≥ 20,000 cfs releases have occurred during normal flood management operations 85% of years since 1975 guide curve
    - Extensive coordination with all interested parties
      - ➢ Need on-ground verification
      - ➢ Assure satellites are available

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Winter Test Release

How Can We Help Each Other?

- Develop team to coordinate test. Representatives from the farming community and other appropriate agencies and groups
- The Corps will try to notify this team 7-10 days before the waters rise downstream and will coordinate satellite imagery
- Need to know key areas of concern
  - Identify areas on maps in the back of the room. Are the maps accurate?
  - About 3-5 hot spots where substantial changes occur between releases
  - The Corps and others will need permission to access the property to take digital photos. County POC's help with this?
  - Farm fields, roads and structures
- Other ways you can help
  - Begin recording daily rainfall data once you are notified of the release
  - Take digital photos of the progression of waters and mark with stakes

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Questions?
Lower Roanoke River Bottomland Hardwood Forest Habitat